

Images in Congenital Cardiac Disease

A tale of two rings

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Abstract We describe a rare case of double vascular ring diagnosed with cardiac magnetic resonance imaging in a patient with ventricular septal defect, pulmonary stenosis, and right aortic arch.

Keywords: Duplication of innominate vein; double vascular ring; right aortic arch

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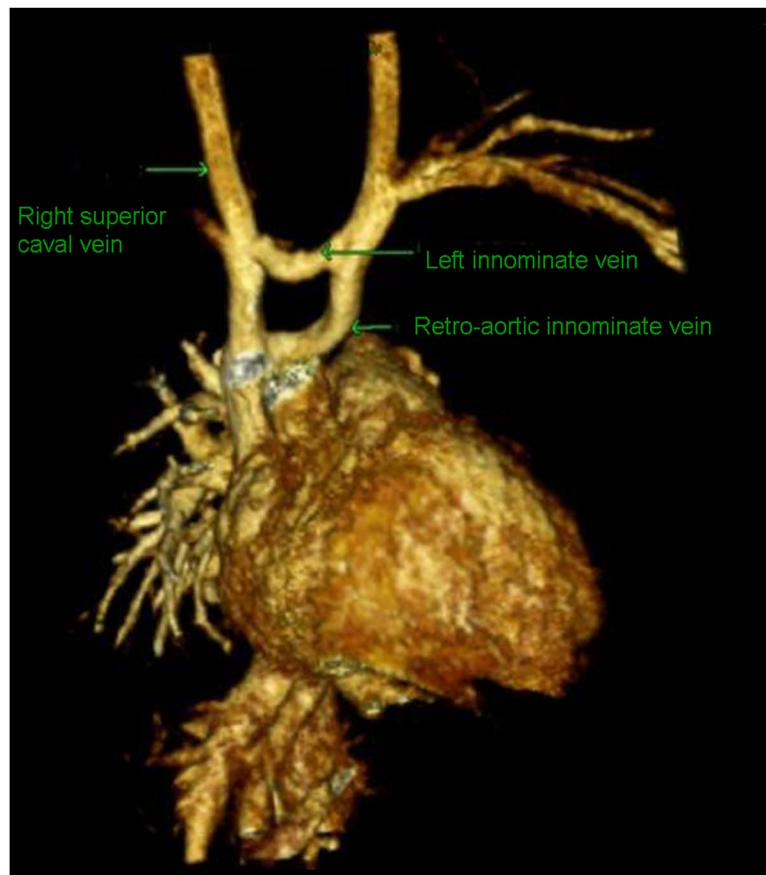


Figure 1.
Venous ring.

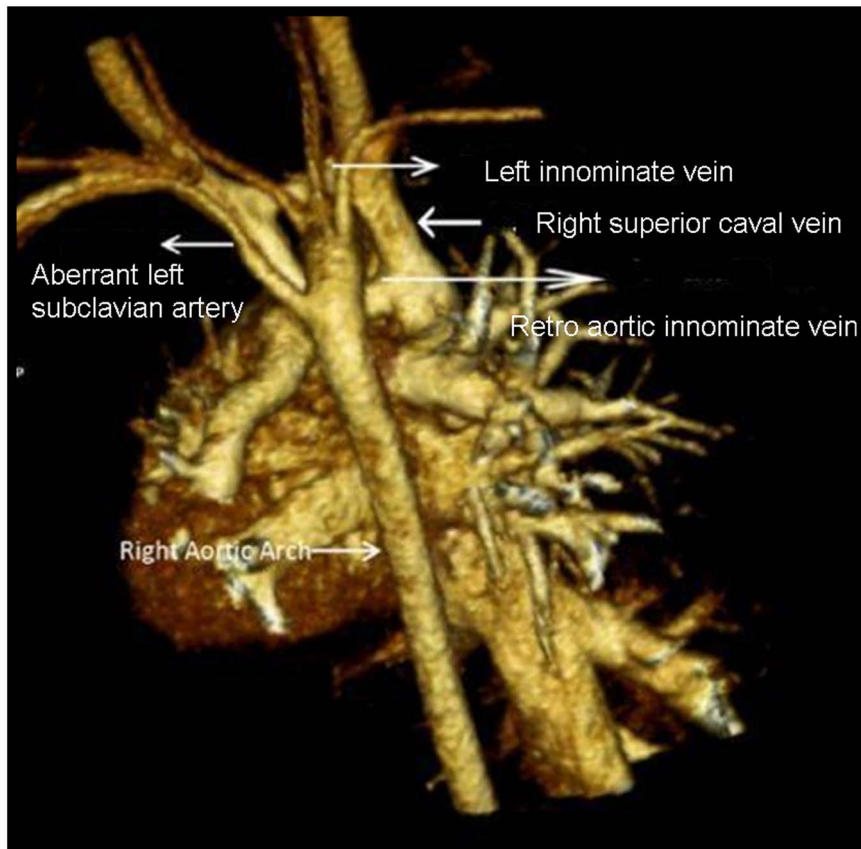


Figure 2.
Arterial ring.

Case

A 12-year-old boy with a history of repaired ventricular septal defect and pulmonary stenosis was referred to our institution from an outside hospital for cardiac magnetic resonance imaging as a part of routine surveillance. His cardiac magnetic resonance imaging revealed duplication of the innominate vein encircling the aorta (Fig 1). He had a right aortic arch with an aberrant left subclavian artery and diverticulum of Kommerell (Fig 2), which constitutes a vascular ring. This would have been a potential set up for compression of the airway and oesophagus from the vascular ring, if the left arterial duct was persistent. However, the patient underwent ligation and division of the arterial duct during the surgical repair of ventricular septal defect and pulmonary stenosis, eliminating this possibility.

Normally the left brachiocephalic vein (innominate vein) joins the right brachiocephalic vein (innominate vein) to form the right superior caval vein. The left innominate vein runs obliquely downward to the right and anterior to the aorta. Its association with an arterial ring is extremely rare, and to date, there has been only one case of double vascular ring described in an autopsy specimen.¹

We describe a rare case of double vascular ring consisting of duplication of the innominate vein, constituting a circum-aortic venous ring and a right aortic arch with aberrant left subclavian artery and diverticulum of Kommerell, constituting an arterial vascular ring, if the left arterial duct was left alone. This could have potentially caused compression of the airway or oesophagus, requiring surgical division of the ring.

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Conflicts of Interest

None.

References

1. Ohsawa R, Kyuno T, Ohtani Y, et al. A case of double aortic arch accompanied by sub-aortic and pre aortic left brachiocephalic veins and anomalous origin and course of left vertebral artery. *Anat Sci Int* 2011; 86: 164–166.